## 1 WHAT IS CLAIMED IS:

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1. A mobile communication system comprising:

a plurality of radio base stations forming respective radio zones and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station selecting, as a wait zone, one of the radio zones that satisfies a criteria demanded by the predetermined procedure, and receiving communication service via the selected wait zone,

each of the radio base stations comprising:

traffic control means for setting a traffic distribution for the plurality of radio zones; and

announcement information including the order of priority assigned to the plurality of radio zones, the order of priority being assigned in accordance with a probability density given to each of the plurality of radio zones under the distribution set by the traffic control means, and for transmitting announcement information to the radio zone formed by the radio station to which the announcing means belongs,

the mobile station comprising:

announcement information receiving means for receiving the announcement information transmitted by the announcing means in accordance with the predetermined procedure; and

wait control means for selecting one of the radio zones as a wait zone, the radio zone to which a highest priority is assigned being a first 1 candidate for selection by the wait control means.

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2. A mobile communication system comprising:

a plurality of radio base stations forming one or a plurality of radio zones and one or a plurality of small-scale radio zones, resulting in a hierarchy of overlapping radio zones, and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station accessing one of the

radio zones formed by the respective one of the
plurality of radio base stations, in accordance with a
predetermined procedure, and receiving communication
service via the accessed radio zone,

each of the plurality of radio base stations comprising:

announcing means for transmitting announcement information which includes identification information for identifying radio channels assigned to respective radio zones and small-scale radio zones, via the radio channel assigned to the radio zone

formed by the radio base station to which the announcing means belongs, the identification information being arranged in the announcement information so as to correspond to the hierarchy of overlapping radio zones,

the mobile station comprising:
 announcement information receiving

means for receiving the announcement information

transmitted by the announcing means, in accordance

with the procedure for radio channel setting control;

measuring means for measuring an

electric field intensity for the radio channel

corresponding to the identification information included in the announcement information received by the announcement information receiving means; and

wait control means for comparing an electric field intensity measured by the measuring means with a preset threshold level, and designating a radio zone to which the radio channel lowest in the hierarchy is assigned as a wait zone in which to receive the communication service, on the condition that the electric field intensity measured by the measuring means exceeds the preset threshold level.

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## A mobile communication system comprising:

a plurality of radio base stations forming one or a plurality of radio zones and one or a plurality of small-scale radio zones, resulting in a hierarchy of overlapping zones, and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station accessing one of the

radio zones formed by the respective one of the
plurality of radio base stations, in accordance with a
predetermined procedure, and receiving communication
service via the accessed radio zone,

each of the plurality of radio base stations comprising:

announcing means for transmitting announcement information which includes identification information for identifying the one or the plurality of radio zones and the one or the plurality of small-scale radio zones, via the radio channel assigned to the radio zone formed by the radio base station to which the announcing means belongs, the identification

information being arranged in the announcement information according to respective positions in the hierarchy of overlapping zones,

measuring means for measuring an
electric field intensity for the radio zone
corresponding to the identification information
included in the announcement information received by
the announcement information receiving means; and

wait control means for comparing an
electric field intensity measured by the measuring
means with a preset threshold level, and designating,
as a wait zone in which to receive the communication
service, a radio zone lowest in the hierarchy of
overlapping zones on the condition that the electric
field intensity measured by the measuring means
exceeds the threshold level.

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104. A mobile communication system comprising:

a plurality of radio base stations forming one or a plurality of radio zones and one or a plurality of small-scale radio zones, resulting in a hierarchy of overlapping zones, and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station accessing one of the
radio zones formed by the respective one of the
plurality of radio base stations, in accordance with a
predetermined procedure, and receiving communication

1 service via the accessed radio zone, each of the plurality of radio base stations comprising:

announcing means for transmitting announcement information which includes identification information for identifying radio channels for the one or the plurality of radio zones and the one or the plurality of small-scale radio zones, via the radio channel assigned to the radio zone formed by the radio 10 base station to which the announcing means belongs, the identification information being arranged in the announcement information according to respective positions in the hierarchy of overlapping zones,

15 announcement information receiving means for receiving the announcement information transmitted by the announcing means, in accordance with the procedure for radio channel setting control;

measuring means for measuring an

the mobile station comprising:

20 electric field intensity for the radio channel corresponding to the identification information included in the announcement information received by the announcement information receiving means; and

wait control means for comparing an 25 electric field intensity measured by the measuring means with a preset threshold level, and designating one of the radio channels, which is assigned to the radio zone lowest in the hierarchy and for which the control means has determined that the electric field 30 intensity measured by the measuring means exceeds the preset threshold level, as a radio channel via which to receive the communication service.

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1 8. A mobile communication system

1 comprising:

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a plurality of radio base stations forming one or a plurality of radio zones and one or a plurality of small-scale radio zones, resulting in a hierarchy of overlapping zones, and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station accessing one of the radio zones formed by the respective one of the plurality of radio base stations, in accordance with a predetermined procedure, and receiving communication service via the accessed radio zone,

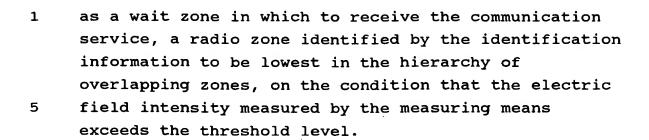
each of the plurality of radio base
stations comprising:

announcement information which includes identification information for identifying the one or the plurality of radio zones and the one or the plurality of small-scale radio zones, via the radio channel assigned to the radio zone formed by the radio base station to which the announcing means belongs, the identification information being arranged in the announcement information according to respective positions in the hierarchy of overlapping zones,

the mobile station comprising:
 announcement information receiving
means for receiving the announcement information
transmitted by the announcing means, in accordance
with the procedure for radio channel setting control;

measuring means for measuring an electric field intensity for the radio zone corresponding to the identification information included in the announcement information received by the announcement information receiving means; and

wait control means for comparing an electric field intensity measured by the measuring means with a preset threshold level, and designating,



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126. A mobile communication system comprising:

a plurality of radio base stations
forming one or a plurality of radio zones and one or a

15 plurality of small-scale radio zones, resulting in a
hierarchy of overlapping zones, and effecting a radio
channel setting control in accordance with a
predetermined procedure; and

a mobile station accessing one of the
radio zones formed by the respective one of the
plurality of radio base stations, in accordance with a
predetermined procedure, and receiving communication
service via the accessed radio zone,

each of the plurality of radio base stations comprising:

announcement information which includes first identification information for identifying a radio channel assigned to the radio zone formed by the radio base station to which the announcing means belongs, as well as including second identification information identifying the radio zones and the small-scale radio zones which overlap the radio zone formed by the radio base station to which the announcing means belongs, via the radio channel assigned to the radio zone formed by the radio base station to which the

announcing means belongs, the second identification

information being arranged in the announcement information according to respective positions in the hierarchy of overlapping zones,

the mobile station comprising:

announcement information receiving means for receiving the announcement information transmitted by the announcing means, in accordance with the procedure for radio channel setting control;

measuring means for measuring an

electric field intensity for the radio channel corresponding to the identification information included in the announcement information received by the announcement information receiving means; and

electric field intensity measured by the measuring means with a preset threshold level, determining the radio channel which is identified by the associated second identification information, if available, to have a lowest hierarchical order, and designating, as a wait zone in which to receive the communication service, the radio zone to which the determined radio channel is assigned, on the condition that the electric field intensity measured by the measuring

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37. A mobile communication system comprising:

means exceeds the threshold level.

a plurality of radio base stations forming one or a plurality of radio zones and one or a plurality of small-scale radio zones, resulting in a hierarchy of overlapping zones, and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station accessing one of the

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- radio zones formed by the respective one of the plurality of radio base stations, in accordance with a predetermined procedure, and receiving communication service via the accessed radio zone,
  - each of the plurality of radio base stations comprising:

announcement information which includes first identification information for identifying a radio channel assigned to a radio zone formed by the radio base station to which the announcing means belongs, as well as including second identification information identifying the radio zones and the small-scale radio zones which overlap the radio zone formed by the radio base station to which the announcing means belongs, over the radio zone formed by the radio base station to which the announcing means belongs, the second identification information being arranged in the announcement information according to respective positions in the hierarchy of overlapping zones,

the mobile station comprising:

announcement information receiving

means for receiving the announcement information

transmitted by the announcing means, in accordance with the procedure for radio channel setting control;

measuring means for measuring an electric field intensity for the radio zone corresponding to the identification information included in the announcement information received by the announcement information receiving means; and

wait control means for comparing an electric field intensity measured by the measuring means with a preset threshold level, determining the radio zone corresponding to the radio channel which is identified by the associated second identification information, if available, to have a lowest hierarchical order, and designating the determined

radio zone as a wait zone in which to receive the communication service on the condition that the electric field intensity measured by the measuring means exceeds the threshold level.

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10 comprising:

a plurality of radio base stations forming one or a plurality of radio zones and one or a plurality of small-scale radio zones, resulting in a hierarchy of overlapping zones, and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station accessing one of the radio zones formed by the respective one of the plurality of radio base stations, in accordance with a predetermined procedure, and receiving communication service via the accessed radio zone.

each of the plurality of radio base stations comprising:

announcement information which includes a hierarchical (equal or subordinate) order of the radio zone formed by the radio base station to which the announcing means belongs with respect to the overlapping radio zones and small-scale radio zones, and which also includes identification information for identifying radio channels assigned to the radio zone formed by the radio base station to which the announcing means belongs and the overlapping radio channel assigned to the radio zone formed by the radio zone formed by the radio zone formed by the radio base station to which the announcing means belongs,

the mobile station comprising:

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announcement information receiving
means for receiving the announcement information
transmitted by the announcing means, in accordance
with the procedure for radio channel setting control,
for extracting the identification information from the
announcement information, and for determining the
hierarchy of the radio zones to which the radio
channels identified by the identification information
are assigned;

measuring means for measuring an electric field intensity for the radio channel corresponding to the identification information obtained by the announcement information receiving means; and

electric field intensity measured by the measuring means with a preset threshold level, and designating a radio zone to which the radio channel lowest in the hierarchy is assigned as a wait zone in which to receive the communication service, on the condition that the electric field intensity measured by the measuring means for the radio channel lowest in the hierarchy exceeds the preset threshold level.

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15%. A mobile communication system comprising:

a plurality of radio base stations forming one or a plurality of radio zones and one or a plurality of small-scale radio zones, resulting in a hierarchy of overlapping zones, and effecting a radio channel setting control in accordance with a predetermined procedure; and

a mobile station accessing one of the radio zones formed by the respective one of the



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plurality of radio base stations, in accordance with a predetermined procedure, and receiving communication service via the accessed radio zone, each of the plurality of radio base stations comprising:

announcement information which includes a hierarchical (equal or subordinate) order of the radio zone formed by the radio base station to which the announcing means belongs with respect to the overlapping radio zones and small-scale radio zones, and which also includes identification information for identifying the radio zone formed by the radio base station to which the announcing means belongs and the overlapping radio zones and small-scale radio zones, over the radio zone formed by the radio base station to which the announcing means belongs,

the mobile station comprising:
 announcement information receiving
means for receiving the announcement information
transmitted by the announcing means, in accordance
with the procedure for radio channel setting control,
for extracting the identification information from the
announcement information, and for determining the
hierarchy of the radio zones corresponding to the
identification information;

measuring means for measuring an electric field intensity for the radio zone corresponding to the identification information extracted by the announcement information receiving means 14g; and

wait control means for comparing an electric field intensity measured by the measuring means with a preset threshold level, and designating a radio zone lowest in the hierarchy determined by the announcement information receiving means as a wait zone in which to receive the communication service, on the condition that the electric field intensity

measured by the measuring means for the radio zone lowest in the hierarchy exceeds the preset threshold level.

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3 10. The mobile communication system as claimed in claim 2, wherein said announcing means comprises means for adding, in the announcement information, preset threshold values individually provided for the radio zone formed by the radio base station to which the announcing means belongs and the overlapping radio zones and small-scale radio zones, resulting in a hierarchy that corresponds to the hierarchy of overlapping zones, and

said wait control means employs the threshold values added to the announcement information by the announcing means in making comparisons with the electric field intensity.

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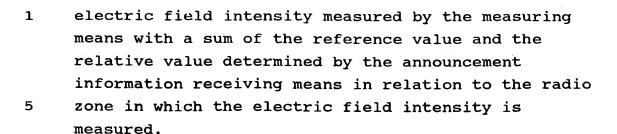
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The mobile communication system as claimed in claim 2 wherein announcing means comprises means for adding a relative value indicating the preset threshold value for the zone formed by the radio base station to which the announcing means belongs, in the form of a difference with respect to a reference value for the threshold value, and

said announcement information receiving means includes means for determining the relative value added to the announcement information, in relation to the radio zone in which the announcement information is received, and

said wait control means compares the



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Claimed in claim 2, wherein said announcing means comprises means for adding relative values indicating the preset threshold values for the radio zone formed by the radio base station to which the announcing means belongs and the overlapping radio zones and small-scale radio zones, in the form of differences with respect to a reference value common to the threshold values, resulting in a hierarchy that corresponds to the hierarchy of overlapping zones, and said wait control means compares the electric field intensity with a sum of the relative value and the reference value.

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claimed in claim 2, wherein said mobile station

comprises zone determination means for performing a cyclic measurement of the electric field intensity of the radio zones in which the mobile station can be located, comparing a measured electric field intensity with a lower acceptance value by which an entry into the radio zone is enabled, stopping processes of measurement and comparison when it is found that the former exceeds the latter, and selecting the

associated radio zone as a candidate in which the announcement information receiving means is to receive the announcement information.

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114. The mobile communication system as claimed in claim 2, wherein said wait control means compares the electric field intensity measured by the measuring means with the threshold value in the descending order in the hierarchy of the radio zones subject to the measurement, and designates the radio zone for which it is found that the former exceeds the latter as a wait zone.

20 25. The mobile communication system as claimed in claim 13, wherein said measuring means comprises means which omits a measurement of the radio zone selected by the zone determination means and substitutes therefor the electric field intensity

25 measured by the zone determination means.

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announcement information receiving
means for receiving announcement information including
orders of priority assigned to radio zones formed by a
plurality of radio base stations, the reception by the
announcement information receiving means being
conducted according to a descending order of preset
traffic distribution and in accordance with a radio



1 channel setting control procedure;

> wait means for determining whether the radio zone associated with the order of priority included in the announcement information received by the announcement information receiving means satisfies a criteria adapted for the radio channel setting control procedure, and for designating the radio zone for which an affirmative answer is given as a wait zone; and

communication control means which receives communication service from the radio base station forming the radio zone designated by the wait means.

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17. A mobile communication system comprising:

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a plurality of base stations forming respective radio zones that overlap each other; a mobile station transportable between said radio zones/; wherein

comprises:

announcing means for sending announcement information including an order of priority of said plurality of base stations to the mobile station located in one of said radio zones, and

each of said plurality of base stations

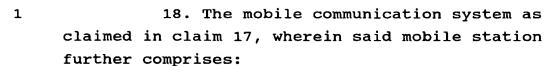
said mobile station comprises:

control means for selecting the base station to which a request for a message channel is to be issued, based on the order of priority of the base stations included in the announcement information transmitted from said plurality of base stations.

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announcement information receiving

means for receiving the announcement information
including the order of priority of said plurality of
base stations and transmitted from said plurality of
base stations; and

transmission means for issuing a

10 request for a message channel to the base station selected by said control means.

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219. The mobile communication system as claimed in claim 17, wherein said mobile station further comprises:

storage means for storing the announcement information;

measuring means for measuring a reception level in reception-level determining channels in a descending order of priority of said plurality of base stations, based on the announcement information stored in said storage means and including the order of priority and based on information relating to the reception-level determining channels.

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2320. The mobile communication system as claimed in claim 19, wherein said control means includes determining means for determining whether the reception level in a reception-level determining channel is equal to or exceeds a predetermined level that enables a request for a message channel.

1 21. The mobile communication system as claimed in claim 17, wherein said announcing means includes first arranging means for ordering the announcement information so as to arrange information relating to reception-level determining channels in a descending order of priority.

. The mobile communication system as claimed in claim 17, wherein said announcing means includes second arranging means for ordering the announcement information so as to couple information relating to each reception-level determining channel to an order of priority associated therewith.

1923. The mobile communication system as claimed in claim 18, wherein said transmission means includes first transmission means for issuing a request for a message channel to the base station selected by the control means when a call is originated.

 $\mathcal{W}$  24. The mobile communication system as claimed in claim 18, wherein said transmission means includes second transmission means for issuing a request for a message channel to the base station selected by the control means when a call is incoming.



2\25. The mobile communication system as claimed in claim 18, wherein said transmission means includes third transmission means for transmitting a request for a communication to the base station selected by the control means when a message channel is switched from one to another in the event of a handover of a call.

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26. A mobile station for use in a mobile communication system, comprising control means for selecting a base station to which a request for a message channel is to be issued, based on an order of priority of a plurality of base stations included in announcement information from said plurality of base stations.

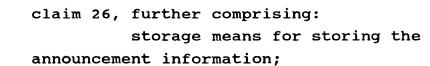
27. The mobile station as claimed in claim 26, further comprising:

announcement information receiving
means for receiving, from said plurality of base
stations, the announcement information including the
order of priority of said plurality of base stations;
and

transmission means for transmitting a request for a message channel to the base station selected by said control means.

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3 28. The mobile station as claimed in



measuring means for measuring a

reception level in reception-level determining
channels in a descending order of priority of said
plurality of base stations, based on the announcement
information stored in said storage means and including
the order of priority and based on information
relating to the reception-level determining channels.

15 31 29. The mobile station as claimed in claim 28, wherein said control means includes determining means for determining whether the reception level in a reception-level determining channel is equal to or exceeds a predetermined level that enables a request for a message channel.

25 20.30. The mobile station as claimed in claim 27, wherein said transmission means includes first transmission means for issuing a request for a message channel to the base station selected by the control means when a call is originated.

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29 31. The mobile station as claimed in
35 claim 27, wherein said transmission means includes
second transmission means for issuing a request for a
message channel to the base station selected by the

1 control means when a call is incoming.

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3032. The mobile station as claimed in claim 27, wherein said transmission means includes third transmission means for transmitting a request for a communication to the base station selected by the control means when a message channel is switched from one to another in the event of a handover of a call.

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33. A pase station forming a radio zone that overlaps radio zones formed by other base stations in a mobile communication system;

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announcing means for sending announcement information including an order of priority of a plurality of base stations constituting the mobile communication system to a mobile station located in one of the radio zones.

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34. The base station as claimed in 30 claim 33, wherein said announcing means includes first arranging means for ordering the announcement information so as to arrange information relating to reception-level determining channels in a descending order of priority.

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35. The base station as claimed in claim 33, wherein said announcing means includes second arranging means for ordering the announcement information so as to couple information relating to each reception-level determining channel to an order of priority associated therewith.

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